

A New Species of *Chersodromia* from Mexico

(Diptera: Empididae)

PAUL H. ARNAUD, JR.

California Academy of Sciences, Golden Gate Park, San Francisco, California 94118

In the Americas, the empidid genus *Chersodromia* Walker is known from one Neotropical species (from Panama; Smith, 1967) and eight Nearctic species (from the eastern, southern, and western shores of the United States; Melander, 1965). In the Palearctic, twenty-two species of *Chersodromia* are presently known (Chvála, 1970). Collin (1961: 61) considered the genus *Chersodromia* "an interesting natural genus of great antiquity in which, while many of the species have become particularly distinct as a result of evolution, practically all the connecting links between them have continued to exist." *Chersodromia* adults usually occur on sandy beaches (mostly marine) where they have the ability to run very rapidly over sand. Curran (1931: 11-12) described the Neotropical species—*longicornis*—from his collecting at Patilla Point, Panama. *Chersodromia longicornis* differed in its selection of habitat from other known species in that it occurred in holes and crevices in lava rocks that were several hundred feet from the shore line, but not wholly submerged at high tide.

The purpose of this paper is to report the discovery and to describe and compare a new species that is closely related to *C. longicornis*, both in structure and in habitat preference. This new species also occurs on rocks, but in this original collection it was taken from rocks along the shore line. The type series was swept during mid-day along with many Dolichopodidae and Canaceidae on the southwestern shore (fig. 10) of Bahía de Mismaloya, about 8 km southwest of Puerto Vallarta. The type locality is below the area where the movie "The Night of the Iguana" was filmed.

***Chersodromia madelinae*, new species**

(Figs. 1, 3-6, 9-10)

Diagnosis.—Elongate, small (length about 1.75 mm. in male; 2.0 mm. in female), brownish-black species; thorax and abdomen thinly grayish-brown pollinose; 1 anterodorsal bristle on front tibiae at about basal third; a row of a dozen short anteroventral bristles on apical half of male mid-tibiae, lacking in female; hypopygium of male with right cercus broad and not attaining apices of dististyles and process of left basistyle with long bristles near apex.

Holotype male.—Length, about 1.75 mm., wing length about 2.1 mm. Head brownish-black, face, frons and back of head grayish pollinose, cheeks about

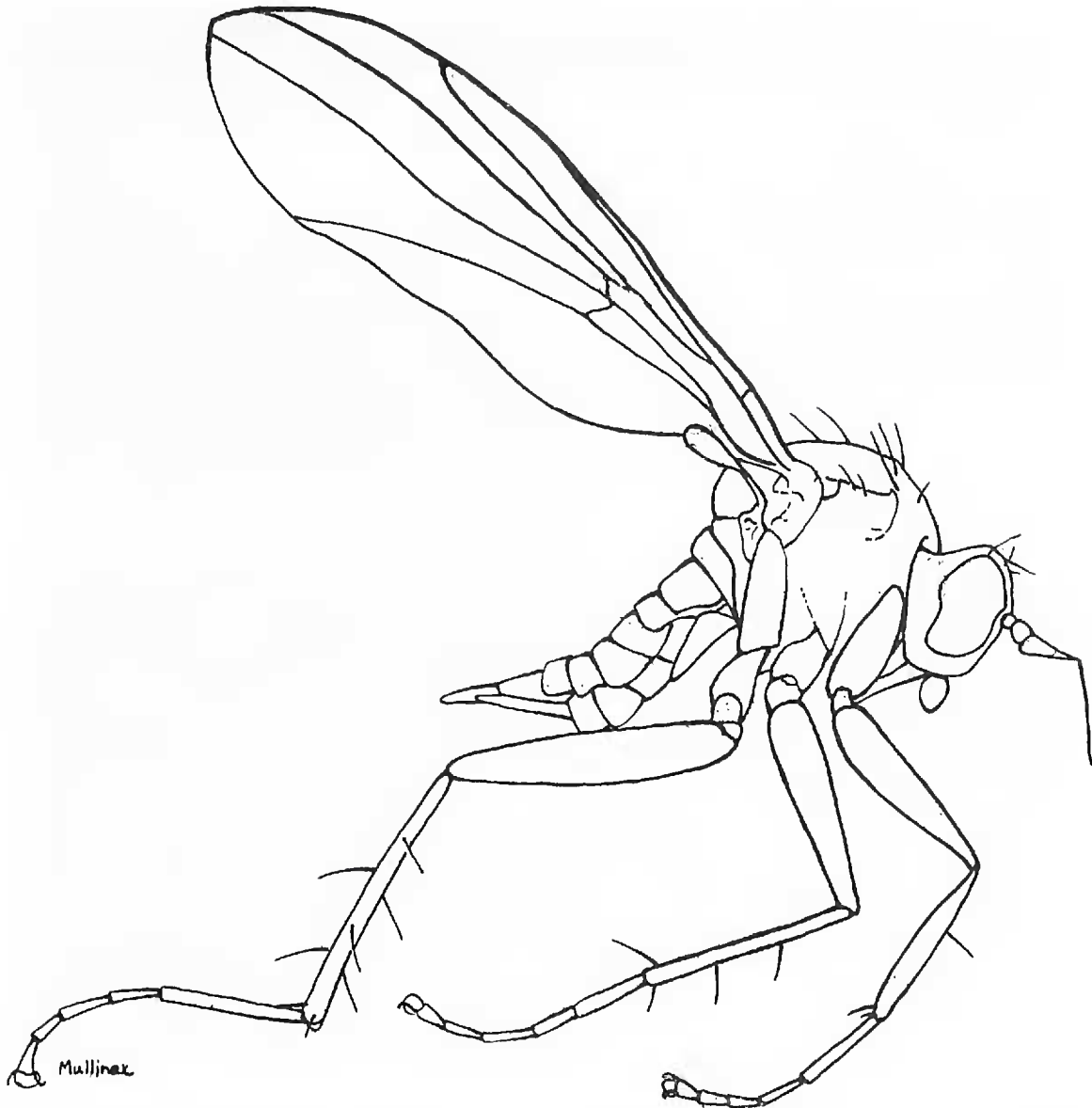
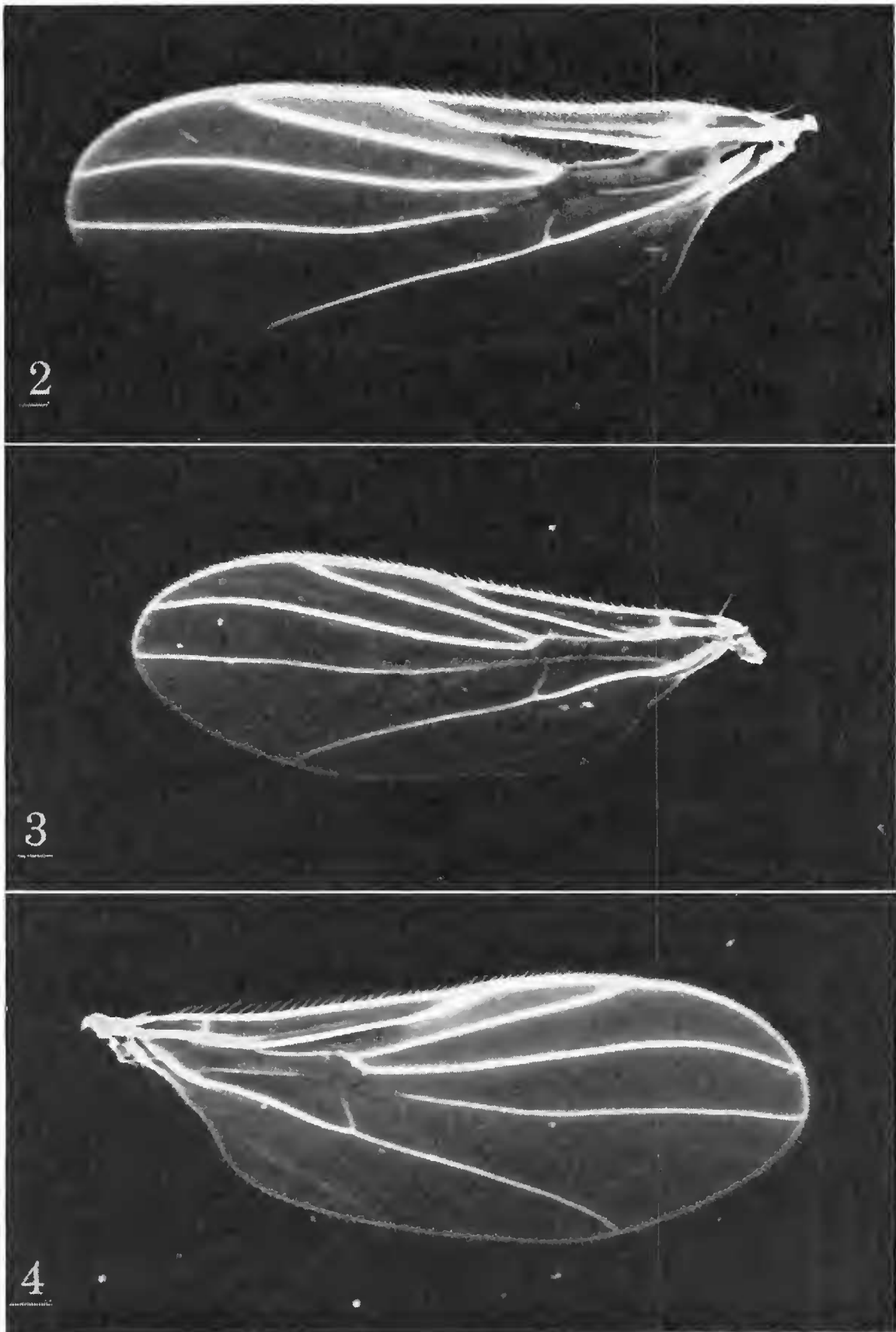


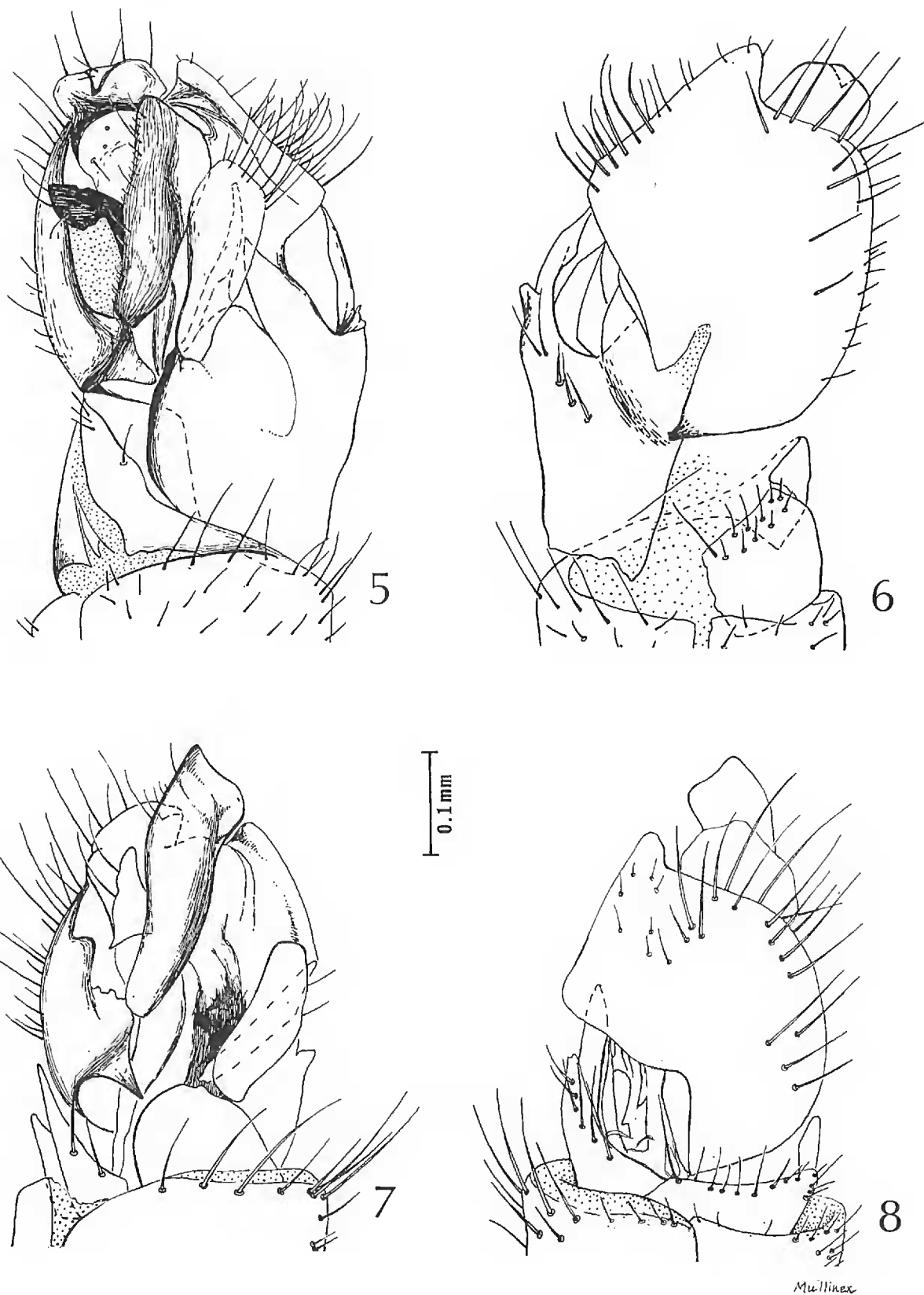
FIG. 1. *Chersodromia madelinae*, new species, right lateral view, paratype female.

one-fourth eye height, eyes with slight excisions opposite bases of antennae and concave on more than lower half of hind margin, face carinate, front at narrowest the width of ocellar protuberance, with a divergent pair of ocellar bristles and another convergent pair at edges of eyes at side of ocellar protuberance, two pairs of vertical bristles. Proboscis brown, exposed portion about half of head height. Palpi blackish, flattened, moderately long haired. Antennae dark brown, third segment elongate and tapered, with curved pubescence; aristae slender, about length of first three antennal segments, very short pubescent.

Thorax brownish-black, thinly grayish-brown pollinose; bristles and hairs of mesonotum black, acrostichals small, 4 pairs of dorsocentrals, scutellum with two pairs of marginal scutellar bristles, the apical long while the outer very small. Legs dark brown, front tibiae with 1 anterodorsal bristle at about basal third; mid-tibiae with 1 anterodorsal bristle at about basal third and with a row of a dozen short anteroventral bristles on apical half; hind tibiae with six bristles—2 dorsals, 2 anterodorsals, and 2 anteroventrals. Wings about 2.1 mm. long and 0.75 mm. wide; venation as illustrated (fig. 3), veins light brown, crossveins



FIGS. 2-4. *Chersodromia* species, wings, upper surfaces. Fig. 2, *C. longicornis* (Curran), left wing, paratype female. Fig. 3, *C. madelinae*, new species, left wing, holotype male. Fig. 4, *C. madelinae*, new species, right wing, allotype female. Illustrations made by projecting wing slide preparations through a B and L Tri-Simplex Microprojector onto a number 5 Azo single weight paper. Projected at same magnification.



FIGS. 5-8. *Chersodromia* species, holotype males, hypopygia. Figs. 5-6, *C. madelinae*, new species, ventrolateral and dorsolateral views. Figs. 7-8, *C. longicornis* (Curran), ventrolateral and dorsolateral views.

indistinct; membrane not clear, with dense microtrichia giving a light yellow-brown tinge. Halteres with knobs blackish-brown, stalks at bases yellow.

Abdomen brownish-black, minute hairs yellow otherwise black haired, thinly grayish-brown pollinose, lightly shining. Asymmetrical hypopygium (figs. 5-6)

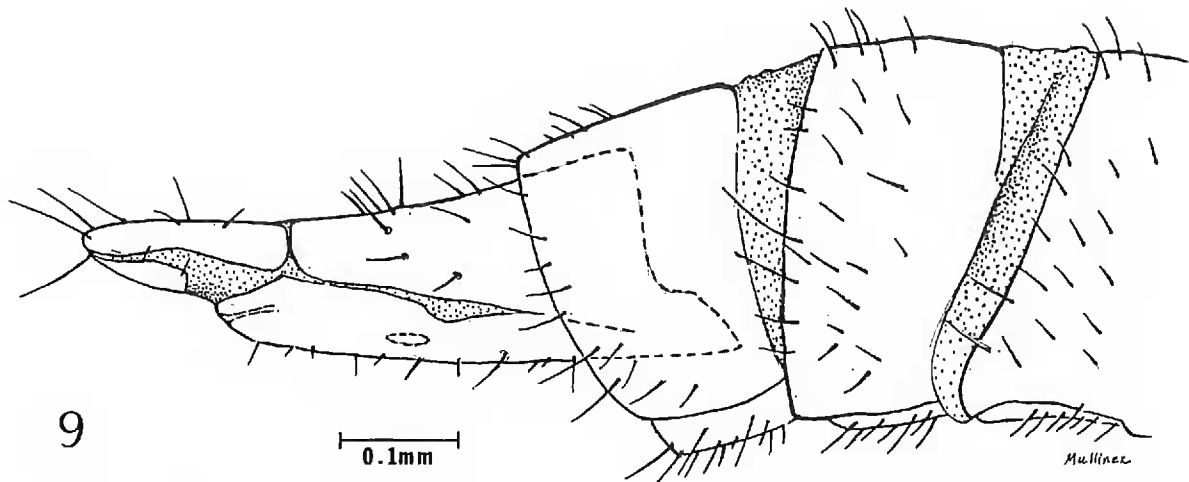


FIG. 9. *Chersodromia madelinae*, new species, allotype female, apical abdominal segments and ovipositor, lateral view.

rotated, brownish-black, yellow bristled; right cercus broad and not attaining apex of dististyles; process of left basistyle broader before apex, with long bristles near apex.

Allotype female.—Length, about 2.0 mm., wing length about 2.5 mm. by 0.9 mm. in width (fig. 4). Similar in coloration to male; mid-tibia lacks comb of short bristles on apical half; ovipositor elongate, tapering and as figured (fig. 9).

Type series.—Holotype male, MEXICO: JALISCO, BAHÍA DE MISMALOYA, 1-I-1971 (P. H. and M. Arnaud), PHA dissection no. 20IV71; mounted on minuten with postabdomen and hypopygium stored in microvial in glycerine and left wing on slide in balsam; deposited in the collection of the California Academy of Sciences, Entomology Type No. 12170. Allotype female, same collection data as holotype, except PHA dissection no. 7VIII71; mounted on minuten, with portion of abdomen and ovipositor stored in microvial in glycerine and right wing mounted on slide in balsam; Entomology Type No. 12170. Paratypes, 4 males and 6 females, same collection data as holotype; deposited in the following collections: 1 female, California Academy of Sciences; 1 male, 1 female, National Museum of Natural History; 1 male, 1 female, American Museum of Natural History (exchange); 1 male, 1 female, collection of Dr. Milan Chvála (exchange); 1 female, sent to Director General de la Fauna Silvestre, México, D. F., Mexico; and 1 male, 1 female, collection of author.

The paratypes are rather similar in size. The wing of one male paratype, which has been mounted in balsam on a slide, is 2 mm. in length. In working with such small creatures, when they are pinned and not mounted on microscope slides, measurements are difficult to make.

I take pleasure in naming this species for my wife, Madeline Milliet Arnaud, who enthusiastically participated in its collection.

Comparison between *Chersodromia madelinae* and *C. longicornis*.—The male of *C. madelinae* differs from *C. longicornis* by the following characters: (1) *madelinae* has tibial bristling with only 1 anterodorsal bristle (not 2) on the anterior tibiae and mid-tibiae with a row of



FIG. 10. Bahía de Mismaloya, Mexico, type locality of *Chersodromia madelinae*, new species. Type series swept from rocks in ocean along roadway, right of center.

about a dozen short anteroventral bristles on apical half (not with an elongate row of about two dozen shorter bristles, on more than apical two-thirds of tibiae); (2) the male hypopygium of *madelinae* (figs. 5–6) differs from that of *longicornis* (figs. 7–8) by its shorter, broader right cercus and the broad long bristled process of the left basistyle. Conversely *longicornis* differs from *madelinae* by its right cercus which is longer than the processes of the dististyles and the process of the left basistyle is narrower and without long bristles near apex and with 2 bristles on outer side of mid-region on the apical half. The female of *C. madelinae* differs from *C. longicornis* in tibial bristling of the anterior leg as there is only 1 anterodorsal bristle in *madelinae* while there are 2 in *longicornis*.

CHERSODROMIA LONGICORNIS (Curran)
(Figs. 2, 7–8)

Coloboneura longicornis Curran, 1931, pp. 11–12.

Chersodromia longicornis: Smith, 1967, p. 39.6.

As a supplement to Curran's description of *longicornis*, illustrations of the male hypopygium and a print of the female wing are included. Figures 7 and 8 illustrate the hypopygium of the male holotype which is deposited in the collection of the American Museum of Natural History. See comparison in description of hypopygium of *C. madelinae*, new species. Figure 2 illustrates the wing of the female,

from the paratype which, through an exchange, is now deposited in the collection of the California Academy of Sciences. The wing is about 2.5 mm. in length and 0.9 mm. in width.

ACKNOWLEDGMENTS

The author would like to thank the following persons for their aid: Dr. Lloyd Knutson and Mr. George C. Steyskal, Agriculture Research Service, c/o National Museum of Natural History, for information concerning the holotype of *Chersodromia longicornis* (Curran), and to Mr. Steyskal also for terminology applied to the male hypopygium of this genus; Dr. Pedro W. Wygodzinsky, American Museum of Natural History, for the loan of type material of *C. longicornis* and for exchange of material; Miss Carolyn Mullinex, California Academy of Sciences, who prepared the line drawings of figures 1, 5-9; and Mr. Maurice C. Giles, California Academy of Sciences, for preparing the photographic print used in figure 10 which was made from a color transparency.

Collecting in Mexico was by permit number 45-70 from the Director General de la Fauna Silvestre, Departamento de Conservacion y Propagacion de la Fauna Silvestre.

LITERATURE CITED

- CHVÁLA, M. 1970. Descriptions of nine new species of Palearctic *Chersodromia* Walk. (Diptera, Empididae), with notes on the genus. Acta Entomol. Bohemoslov., 67(6): 384-407, figs. 1-35.
- COLLIN, J. E. 1961. Empididae. Part I. Tachydrominae. Vol. 6, pp. i-vi, 1-219, frontispiece, figs. 1-73. In [Verrall, G. H., ed.], British flies. Cambridge, England.
- CURRAN, C. H. 1931. New species of Empididae from Panama. Amer. Mus. Novit., 467: 1-12.
- MELANDER, A. L. 1965. Family Empididae (Empidae, Hybotidae). Pp. 446-481. In Stone, A. et al., A catalog of the Diptera of America north of Mexico. U. S. Dep. Agric., Agric. Handb. No. 276, pp. I-IV, 1-1696.
- SMITH, K. G. V. 1967. 39. Family Empididae (Empidae, Hybotidae). Pp. 39.1-39.67. In, A catalogue of the Diptera of the Americas south of the United States. Dep. Zool. Secretar. Agric., São Paulo.